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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,978	03/13/2001	Shinichi Takeda	837.1964/JDH	9367

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EXAMINER

HUGHES, DEANDRA M

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,978

Applicant(s)

TAKEDA ET AL.

Examiner

Deandra M Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2, 7-43 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12, 14 and 15 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19, 21, 22, 25, 30, 36, 38, 39 and 42 is/are allowed.
- 6) ☒ Claim(s) 1, 7, 10, 16-18, 20, 23, 24, 26, 31-35, 37, 40, 41 and 43 is/are rejected.
- 7) ☒ Claim(s) 2, 8, 9, 27-29 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1, 7, 16, 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Cao (US 6,396,607 filed Jun. 30, 1998).

With regard to claims 1, 17-18, and 23-24, Cao discloses an apparatus that operates according to the following method:

- inputting a signal light to an optical regenerator (input 18);
- shaping a waveform of the input signal by the optical regenerator to thereby output a shaped signal light (col. 4, lines 20-25) ; and
- controlling a power level (col. 7, line 56) of signal light input to the optical regenerator so that a quality measurement of the signal light output by the optical regenerator is improved, the quality measurement being one of a Q factor, a bit error rate (col. 7, line 54), a spectrum shape and an eye opening.

With regard to claim 7, Cao discloses a device comprising:

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- an optical regenerator (MARS 10) inputting a signal light (Input 18) and shaping a waveform of the input signal light to thereby output a shaped signal light (col. 4, lines 20-25);
- and a power controller (52) controlling a power level of signal light before the signal light is input to the optical regenerator (60) so that;
- a quality measurement (col. 7, lines 52-67 and via 46) of the signal light is input to the optical regenerator so that a quality measurement of the signal light output by the optical regenerator is improved, the quality measurement being one of a Q-factor, a bit error rate, a spectrum shape, and an eye-opening.

With regard to claim 16, the input signal is a WDM signal (col. 4, line 2).

With regard to claims 32-33, the regenerator is a NOLM type (col. 4, line 16).

3. Claims 10, 13, 20, 26, 37, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Roberts (US 6,067,180 published May 23, 2000).

With regard to claim 10, Roberts discloses an apparatus that operates according to the following method:

- providing an optical regenerator (fig. 3) having a variable threshold (the Examiner considers the tap weights and delays to be the variable thresholds) for waveform shaping input signal light according to said variable threshold and thereby outputting waveform shaped light;
- measuring the quality of output signal light (col. 8, lines 10-15); and

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- controlling said variable threshold in accordance with the measured quality so that the measured quality is improved (col. 8, lines 10-15).

Claim 13 is merely the device that operates according to the methods of claim 10.

With regard to claim 20, Roberts discloses the following apparatus that operates according to the following claimed method:

- inputting signal (input 17) light into an optical regenerator (fig. 3);
- shaping a waveform (see title) of the input signal light by the optical regenerator to thereby output a shaped signal light;
- measuring an eye opening of said output signal light; and
- controlling the power level (via attenuators) of said input signal light in accordance with the measured eye opening to improve the measured eye opening (col. 7, lines 55-67 and col. 8, lines 1-15).

With regard to claim 26, Roberts discloses the following apparatus:

- an optical regenerator (fig. 3) inputting a signal light (input 17) and shaping a waveform of the input signal light to thereby output a shaped signal light (title);
- means for measuring an eye opening of said output signal light (col. 7, line 61); and
- means for controlling a power level (via attenuators) of said input signal light in accordance with the measured eye opening to improve the measured eye opening (col. 7, lines 55-65).

With regard to claims 37 and 43, the regenerator is an interference type optical regenerator (fig. 3, #5; col. 6, line12).

4. Claims 17 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergano (US 5,491,576 published Feb. 13, 1996).

Bergano discloses an apparatus that operates according to the following method:

- inputting signal light to an optical regenerator (fig. 2, #201);
- shaping a waveform of the input signal light by the optical regenerator to thereby output a shaped light (fig. 2, #203);
- measuring a Q factor of said output signal light (col. 4, lines 25-40); and
- controlling a power level (the Examiner considers the power level to be an 'adjustable parameter' of the transmitter; see col. 4, line 41) of the signal light input to the optical regenerator in accordance with the measured Q factor to improve the measured Q factor.

5. Claims 18 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Yeates (US 5,396,059 published Mar. 7, 1995).

Yeates discloses an apparatus that operates according to the following method:

- inputting a signal light to an optical regenerator (fig. 2);
- shaping a waveform of the input signal light by the optical regenerator to thereby output a shaped signal light (fig. 2);
- measuring a bit error rate of said output signal light (fig. 1); and

- controlling a power level of the input signal light in accordance with the measured bit error rate to improve the measured bit error rate (col. 3, lines 34-65).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (US 6,396,607 filed Jun. 30, 1998) in view of Roberts (US 6,067,180 published May 23, 2000).

Cao does not specifically disclose controlling the input power level according to a measured eye opening. However, Roberts teaches adjustment of an optical regenerator according to a measured eye opening (col. 8, lines 10-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the input power level according to the measured eye opening for the advantage of equalization of polarization mode dispersion (col. 7, lines 55-65).

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergano (US 5,491,576 published Feb. 13, 1996) in view of Cao (US 6,396,607 filed Jun. 30, 1998). Bergano does not specifically disclose that the regenerator is a regenerator of an NOLM type. However, Cao teaches NOLM type regenerators (NOLM). It would

have been obvious to one of ordinary skill in the art at the time the invention was made for the advantage of a standard optical regenerator.

9. Claims 35 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeates (US 5,396,059 published Mar. 7, 1995) in view of Cao (US 6,396,607 filed Jun. 30, 1998). Bergano does not specifically disclose that the regenerator is a regenerator of an NOLM type. However, Cao teaches NOLM type regenerators (NOLM). It would have been obvious to one of ordinary skill in the art at the time the invention was made for the advantage of a standard optical regenerator.

Allowable Subject Matter

10. Claims 19, 21-22, 25, 30, 36, 38-39, 42 are allowed.

11. Claims 2, 8-9, 27-29, 31, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is an examiner's statement of reasons for allowance.

With regard to independent claims 19 and 25, the prior art does not teach or make obvious *shaping a waveform of an input signal light wherein the power of the input signal light is controlled in accordance with a measured spectrum shape*.

With regard to independent claims 21-22, the prior art does not teach or make obvious an optical regenerator wherein an attenuator attenuates the input signal to the optical regenerator based on a measured quality as 'quality' is defined by applicant (Q factor, a bit error rate, a spectrum shape, or an eye opening).

With regard to claims 2, 8, 27-29, the prior art does not teach or make obvious controlling the gain of the optical amplifier prior to signal regeneration by the optical regenerator in accordance with a quality measurement.

With regard to claim 9, the prior does not teach attenuating the input optical signal following amplification in conjunction with the other claimed elements.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

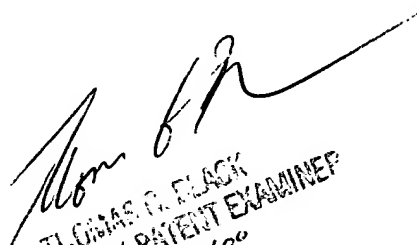
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on 703-305-9707. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


DMH


THOMAS G. BLACK
SUPERVISORY PATENT EXAMINER
GROUP 3600